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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/802,840	03/18/2004	Mikihiko Ishii	119132	5068
25944	7590	02/09/2005	EXAMINER	
OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320			LYONS, MICHAEL A	
			ART UNIT	PAPER NUMBER
			2877	

DATE MAILED: 02/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/802,840

Applicant(s)

ISHII ET AL.

Examiner

Michael A. Lyons

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 02 August 2004.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-34 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☒ Claim(s) 2-12 15-22, and 25-34 is/are allowed.  
6) ☒ Claim(s) 1, 13, 23 and 24 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 18 March 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 031804.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION*****Drawings***

Figure 8 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.121(d)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

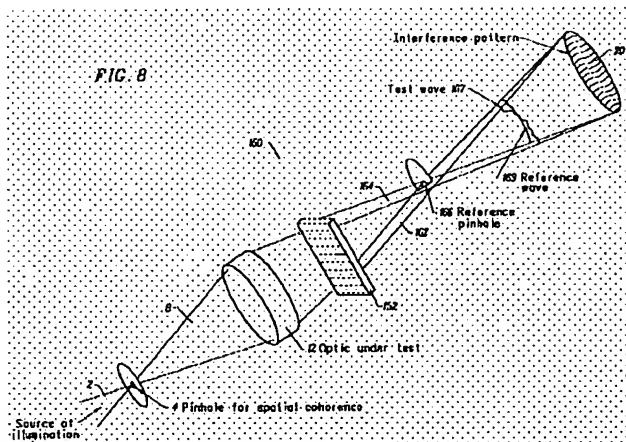
***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**Claims 1 and 13 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Medeck (5,835,217).**



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Regarding claims 1 and 13, Medeck (Fig. 8) discloses an apparatus and corresponding method for performing point diffraction interference comprising a pinhole 4 for forming a spatially coherent spherical input wave, an optic under test 12 which the input beam passes through, a diffraction grating 152 as a dividing optic for dividing the input beam into a measuring beam and reference beam, a reference pinhole 166 for generating a perfectly spherical reference wave, and a detector 20 for detecting an interference pattern generated by the operation of the device.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

**Claims 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Medeck (5,835,217).**

As for claim 23, Medecky discloses the apparatus above with regard to claim 1 but fails to disclose reprocessing the optic under test based on the interference pattern generated by the optic and the interferometer. However, Official Notice is taken as to the well known use of reprocessing an optic under test based on unfavorable results generated by an interference pattern, and it would have been obvious to one of ordinary skill in the art at the time the invention was made to remove the test optic of Medecky and reprocess it based on the interference patterns in order to create a more accurate optic.

As for claim 24, Medecky's optic 12 is a lens for a photolithography system (Col. 2, lines 25-26).

***Allowable Subject Matter***

**Claims 7, 9, 11, and 15-17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.**

The following is a statement of reasons for the indication of allowable subject matter:

As to claims 7 and 15, the prior art of record, taken either alone or in combination, fails to disclose or render obvious the use of a light amount-adjusting section that allows the light passing through the measurement and reference paths of the interferometer to be equal, in combination with the rest of the limitations of the above claims.

**Claims 2-6, 8, 10, 12, 14, 18-22, and 25-34 are allowed in view of the prior art.**

The following is a statement of reasons for the indication of allowable subject matter:

As for claims 2 and 14, the prior art of record, taken either alone or in combination, fails to disclose a point diffraction interference measuring apparatus and method, wherein the

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apparatus and method contain an optical path-dividing element that divides the initial light beam so that only the measurement beam passes through the test optic instead of the combined measurement and reference beam, in combination with the rest of the limitations of the above claims.

As for claims 4, 19, and 22, the prior art of record, taken either alone or in combination, fails to disclose or render obvious a point diffraction interference measuring apparatus and method, wherein the apparatus and method contain an optical switching element to switch a device and method from having both the combined reference and measurement beam pass through the test optic to having just the measurement beam separate from the reference beam pass through the test optic, in combination with the rest of the limitations of the above claims.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US Pat. 6,614,535, an exposure apparatus with interferometer to Kakuchi et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael A. Lyons whose telephone number is 571-272-2420. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J Toatley can be reached on 571-272-2800 ext. 77. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MAL

February 1, 2005



Gregory S. Veltis, Jr.  
Supervising Patent Examiner